



# SEQUENCE LISTING

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<120> IMPROVED ALPHAVIRUS REPLICONS AND HELPER CONSTRUCTS

<130> 9368-5

<140> US 10/804,331

<141> 2004-03-19

<150> US 60/456,196

<151> 2003-03-20

<160> 44

<170> PatentIn version 3.3

<210> 1

<211> 18

<212> PRT

<213> Artificial

<220>

<223> Alphavirus attenuating amino acid insertion sequence

<400> 1

Ile Thr Ser Met Asp Ser Trp Ser Ser Gly Pro Ser Ser Leu Glu Ile  
1 5 10 15

Val Asp

<210> 2

<211> 357

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<213> Artificial

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<223> Spacer sequence generated by AluI digest of pCDNA

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acgttgcgca aactattaac tggcgaacta cttactctag ctaccaactc tttttccgaa 120  
ggtaactggc ttcagcagag cgcagatacc aaatactggt cttctagtgt agccgtagtt 180  
aggccaccac ttcaagaact ctgtagcacc gcctacatac ctgcgtctgc taatcctggt 240  
accagtggct gctgccagtg gcgataagtc gtgtcttacc gggttggact caagacgata 300

gttacccgat aaggcgcagc ggtcgggctg aacgggggggt tcgtgcacac agcccag 357

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 <211> 342  
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 atggattgca cgcaggttct ccggccgctt ggggtggagag gctattcggc tatgactggg 180  
 cacaacagac aatcggctgc tctgatgccg ccgtgttccg gctgtcagcg caggggccc 240  
 cggttctttt tgtcaagacc gacctgtccg gtgccctgaa tgaactgcag gacgaggcag 300  
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 <211> 257  
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 cgagataggg ttgagtgttg ttccagtttg gaacaagagt ccactattaa agaacgtgga 120  
 ctccaacgtc aaagggcgaa aaaccgtcta tcagggcgat ggcccactac gtgaaccatc 180  
 accctaataca agtttttttg ggtcgagggt ccgtaaagca ctaaatcgga accctaaagg 240  
 gagccccga tttagag 257

<210> 5  
 <211> 383  
 <212> DNA  
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<400> 5  
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gccggaacac ggcgcatca gagcagccga ttgtctgttg tgcôcagtca tagccgaata	180
gcctctccac ccaagcggcc ggagaacctg cgtgcaatcc atcttggtca atcatgcgaa	240
acgatactca tcctgtctct tgatcagatc cgaaaatgga tatacaagct cactcattag	300
gcaccccagg ctttacctt tatgcttccg gctcgtatgt tgtgtggaat tgtgagcgga	360
taacaatttc acacaggaaa cag	383

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tggaatcgaa atctcgtgat ggcaggttgg gcgtcgcttg gtcggtcatt tcgaacccca	180
gagtcccgtc cagaagaact cgtcaagaag gcgatagaag gcgatgcgct gcgaatcggg	240
agcggcgata ccgtaaagca cgaggaagcg gtcagcccat tcgccgcaa gcttgatat	300
ccattttcgg atctgatcaa gagacaggat gaggatcggt tcgcatgatt gaacaagatg	360
gattgcacgc aggttctccg gccgcttggg tggagaggct attcggctat gactgggcac	420
aacagacaat cggctgctct gatgccgccg tggtccggct gtcagcgcag gggcgcccg	480
ttctttttgt caagaccgac ctgtccggtg ccctgaatga actgcaggac gaggcagcgc	540
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tggaatcgaa atctcgtgat ggcaggttgg gcgtcgcttg gtcggtcatt tcgaacccca	180

gagtcccgct cagaagaact cgtcaagaag gcgatagaag gcgatgcgct gcgaatcggg	240
agcggcgata ccgtaaagca cgaggaagcg gtcagcccat tcgccgcaa gctcttcagc	300
aatatcacgg gtagccaacg ctatgtcctg atagcgggcc gccacacca gccggccaca	360
gtcgatgaat ccagaaaagc ggccattttc caccatgata ttcggcaagc aggcacgccc	420
atgggtcacg acgagatcct cgccgtcggg catgcgcgcc ttgagcctgg cgaacagttc	480
ggctggcgcg agcccctgat gctcttcgtc cagatcatcc tgatcgacaa gaccggcttc	540
catccgagta cgtgctcgct cgatgcgatg tttcgcttgg tggcgaatg ggcaggtagc	600
cggatcaagc gtatgcagcc gccgcattgc atcagccatg atggatactt tctcggcagg	660
agcaaggatga gatgacagga gatcctgccc cggcacttcg cccaatagca gccagtcctt	720
tcccgcttca gtgacaacgt cgagcacag	749

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<210> 9  
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<400> 9	
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<210> 10  
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<400> 10	
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<210> 11  
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 <210> 14  
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<210> 16  
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<210> 17  
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<210> 18  
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<400> 18  
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<210> 19  
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<400> 19  
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<210> 20  
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 <210> 24  
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 <400> 24  
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 <210> 25  
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<213> Artificial

<220>

<223> PCR primer

<400> 25

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20

<210> 26

<211> 1014

<212> DNA

<213> Homo sapiens

<400> 26

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ttctcataac ctaacggggt ccttttagta ttttatctgg gttaaaatta ccagctgtaa 180

tttggcagct ctaataagac tgcagcaata cttatcttcc atttgaacag attgttactt 240

gaccaaggga agttaatagc aaaagtaact gcagggcaca tgtatgtcat gggcaaaaaa 300

aaaaaagtaa cagcaattaa ggtttgcagg tacttagaat ttttcctgag ccaccctcta 360

gagggcagtg ttacatatat atctgtaatt atccagttac aacaaaaaaa gggctctcat 420

tcatgcatga aaatcagaaa tatttcatac tcttaaagaa cacattggaa ccaatattat 480

gattaaaaca tatttttgcta agcaaagaga tattaaaaat taattcatta acattctgaa 540

cattttttta cttgtaaaaa caactttgat gccttgaata tataatgatt cattataaca 600

attatgcata gatttttaata atctgcatat tttatgcttt catgtttttc ctaattaatg 660

atttgacatg gtttaataatt ataatatatt ctgcatcaca gtttacatat ttatgtaaaa 720

taagcattta aaaattatta gttttattct gcctgcttaa atattacttt cctcaaaaag 780

agaaaacaaa aatgctagat ttacttttat gacttgaatg atgtggtaat gtcgaactct 840

agtatttaga attagaatgt ttcttagcgg tcgtgtagtt atttttatgt cataagtgga 900

taatttgta gtcctataa caaaagtctg ttgcttgtgt ttcacatttt ggatttcta 960

atataatggt ctcttttttag aaaagggtgga caagtcctat tttcaagaga agat 1014

<210> 27

<211> 26

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<220>

<223> PCR primer



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<210> 28  
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<220>  
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<400> 28  
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<210> 29  
 <211> 34  
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<220>  
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<400> 29  
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<210> 30  
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<400> 30  
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<400> 31  
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<400> 44  
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